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4. *RHINOCEROS RUGOSUS* – A NAME FOR THE INDIAN RHINOCEROS

The German zoologist Johann Friedrich Blumenbach introduced a new name for the Indian Rhinoceros (*Rhinoceros unicornis* Linnaeus, 1758) in the first and second editions of the *Handbuch der Naturgeschichte,* published in 1779 and 1782. He changed the names in subsequent editions. His nomenclature is viewed in a historical perspective.

Blumenbach's Handbuch

Johann Friedrich Blumenbach (1752-1840) was appointed lecturer of medicine and curator of the natural history collection at the University of Göttingen in Germany in 1776. Two years later he became full professor and remained at the same university for the rest of his career, initially as a colleague of Johann Friedrich Gmelin (1748-1804), who edited the 13th edition of the *Systema Naturae*. Blumenbach is well known for his contributions to anthropology, comparative anatomy and theoretical biology, and was a prolific author on these subjects (Kohn 1992: 56). To serve as a text for a one-semester course in natural history, he compiled *Handbuch der Naturgeschichte* (HANDBOOK OF NATURAL HISTORY), first published in 1779. This was intended as a summary of the world's fauna with short descriptions of each species, similar to the *Systema Naturae* by Carl Linnaeus (1707-1778). Blumenbach confidently and consistently followed the system of nomenclature and systematics introduced by Linnaeus. Although copies of the *Handbuch* in international zoological libraries are few, twelve editions were produced between 1779 and 1830. The fact that it was a required text for all his students probably explains this incongruity.

Two species of Rhinoceros

When Blumenbach wrote the first edition of the *Handbuch* in 1779, the systematic status of the two-horned rhinoceros was still under review. Linnaeus (1758) had been ahead of his time in listing *Rhinoceros bicornis* as a valid species, but his diagnosis appeared to be confused (Rookmaaker 1998). Blumenbach at first suggested that rhinos only differed in the number of horns, hence the African animal was no more than a variety of the Asian species: "Sie sind aber weiter in nichts von gemeinen Nashorn verschieden, und für eine blose Spielart von diesem anzusehn"(Blumenbach 1779: 135). While working on the second edition of 1782, he heard about the monograph on the African rhinoceros by Petrus Camper (1722-1789) published in Dutch in the same year, but he had not seen the book and he did not change his classification. Camper (1782) studied the anatomy of the African rhinoceros in detail and found that it differed from the one-horned animal not only in the number of horns, but more significantly in the differences in the number and form of the teeth, especially molars. Blumenbach accepted this argument and from the third edition of the *Handbuch* of 1788 onwards, he separated the African rhinoceros with a specific epithet (Table 1). There were further changes in the third edition: the text to each species became much shorter, and the names were thoroughly revised.

In the third edition of *Handbuch der Naturgeschichte* dated 1788, Blumenbach used *Rhinoceros unicornis* for the Asian one-horned rhinoceros and *Rhinoceros bicornis* for

Table 1: Species of Rhinoceros in the Handbuch der Naturgeschichte by J.F. Blumenbach

Date	Edition	Page	Asian species	African species
1779	1	134-135	*R. rugosus*	variety
1782	2	133	*R. rugosus*	variety
1788	3	135	*R. unicornis*	*R. bicornis*
1791	4	123	*R. unicornis*	*R. bicornis*
1797	5	126	*R. asiaticus*	*R. africanus*
1799	6	126	*R. asiaticus*	*R. africanus*
1802	Dutch	163-164	*R. unicornis*	*R. bicornis*
1803	7	123	*R. asiaticus*	*R. africanus*
1807	8	127-128	*R. asiaticus*	*R. africanus*
1814	9	128	*R. asiaticus*	*R. africanus*
1821	10	130	*R. asiaticus*	*R. africanus*
1825	11	107	*R. asiaticus*	*R. africanus*
1830	12	107	*R. asiaticus*	*R. africanus*

the African two-horned animal. This nomenclature was repeated in the fourth edition of 1791, but in the fifth edition of 1797, Blumenbach changed his mind and he called them *Rhinoceros asiaticus* and *Rhinoceros africanus* respectively. There is nothing particularly unusual about Blumenbach's systematic treatment of the two species. He was, however, very flexible in his nomenclature and, like most of his contemporaries, felt free from restraints. There were very few rules as yet how the names proposed by different authors should be applied. It is remarkable that Blumenbach made very few changes in the text of the sixth and later editions of the *Handbuch*. Even in 1830, he still recognized only two species, despite the discovery of the Sumatran rhinoceros (*Dicerorhinus sumatrensis*) in 1793 and the white rhinoceros (*Ceratotherium simum*) in 1817. His classification became increasingly outdated, possibly in line with the *Handbuch*'s use as a textbook for a general course of zoology.

A forgotten name

Blumenbach used a new name for the well-known Indian Rhinoceros when he wrote the first edition of the *Handbuch der Naturgeschichte* in 1779, in favour of others already in use at the time. He chose to name the animal *Rhinoceros rugosus*, which doubtlessly is a valid name. Fortunately, it clearly is a junior synonym of *Rhinoceros unicornis* Linnaeus, 1758. The amazing fact, which I can advance with confidence (Rookmaaker 1983), is that the *Rhinoceros rugosus* of Blumenbach has never been cited again, neither by himself, nor by any other author, be it as a valid name or in a list of synonyms. It was listed by Sherborn (1902) in his meticulously compiled catalogue of scientific names, but has not been picked out of there later. The name was completely overlooked or forgotten, and while there is no need to resurrect it after 223 years, it shows that bibliographic research will continue to discover new insights and forgotten facts. Sometimes this necessitates changes in established scientific names under the rules of nomenclature. True, this can easily be seen as an unnecessary nuisance. But at the same time, it could be avoided by incessant and wide-ranging reviews of the literature. Taxonomy, and science in general, recognizes the value of each person's contribution, even if one disagrees with the conclusions. It is, therefore, a reflection of our own limitations rather than good science to state that a certain scientific name is forgotten and hence unavailable, apparently favouring some authors above others for no intrinsic reason. The real problem is that the books written in the 18th and early 19th Century become increasingly difficult to access and to understand in their historical context. The history of our subject should not be overlooked.

Citation

The correct citation of Blumenbach's name for the Indian Rhinoceros: *Rhinoceros rugosus* Blumenbach, *Handbuch der Naturgeschichte*, first edition, 1779, p. 134. Type locality not stated, but obviously India. No type specimen identified.

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5. OBSERVATIONS ON CHICK MORTALITY IN DARTER *ANHINGA MELANOGASTER* IN GIR FOREST

The Darter *Anhinga melanogaster*, also known as the Snakebird, is widely distributed from Africa through southern Asia to the Indo-Chinese subregion, Philippines, New Guinea, Australia, New Zealand (Ripley 1982), tropical and subtropical zones of America, and also occurs in warm temperate zones (del Hoyo *et al.* 1992). In South Asia, it is distributed throughout the Indian Union, Bangladesh, Pakistan, Sri Lanka and Myanmar (Ali 1996). The nesting season of the Darter varies from June to August in northern India and from November to February in southern India (Ali 1996). In August 2001, we came across a breeding site of Darter near a natural pool locally known as "*Kodiar Guna*" near the Kamleshwar reservoir in Gir forest. Ten nests were constructed in a Jamun tree (*Syzygium cumini*) that was *c.* 11 m high. The nests were built among branches bifurcating from the bole (53 cm GBH). The pool also harbours three to four Muggers (*Crocodylus palustris*). The nests were the typical twig platforms of the species, with a cup-like depression in the centre (Ali 1996). Most of the nests (6) were constructed in the central part of the tree; one nest was on the extreme left side, and the remaining three to the right. Some of the centrally constructed nests were located very close (<1.5 m) to each other. The lowest nest was built 5 m above ground level and the highest was located at 9 m. It seems that the Darter prefers using twigs of tree or shrubs which are available around the breeding site for constructing the nest, as only twigs of the Jamun tree were used for building the nest.

Our observation started when the chicks were approximately 3 days old. Four to five chicks were seen in each nest, except one where incubation was still on. There were initially 39 Darter chicks in nine nests, but late hatching of eggs in some nests increased the total to 44 after two weeks. Of these, only 27 (61%) survived to reach the flight stage. Maximum mortality was observed after two weeks. One nest located at the extreme right, comprising of four chicks and a parent bird, suffered complete mortality within three weeks from hatching, probably due to an attack by a predatory bird. The carcasses of three chicks and an adult bird were found embedded in a *Lantana* bush below the breeding site.

Predation on Darter chicks was never observed directly, but a Changeable Hawk-Eagle (*Spizaetus cirrhatus*) was once seen circling low near the breeding site during the evening. Three destroyed eggs were later found below the tree. The bigger chicks, which regularly move and trample the nests, may also be responsible for the destruction of eggs. As some nests were constructed very close to each other, some chicks tried to beg for food from the parent bird of the adjoining nest. This led to aggressive behaviour from the parent bird, which vigorously jerked its 'S' shaped neck forward to stab the chicks of other birds with its pointed bill.

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